

PROJECT DESCRIPTION

GENERAL

THIS PORTION OF THE PROJECT INVOLVES THE INSTALLATION OF A TRAFFIC SIGNAL AT THE INTERSECTION OF MD 193 (UNIVERSITY BOULEVARD) AND THE EXIT 29 OFF-RAMP FROM I-495. RAMP 2 WAS WIDENED TO ACCOMMODATE LEFT TURNS FROM RAMP 7 AND RIGHT TURNS THAT WILL BE SIGNALIZED. THE TRAFFIC SIGNAL WILL INCLUDE LED SIGNAL HEADS, APS COMPATABILITY, AND COUNTDOWN PEDESTRIAN SIGNAL HEADS. THIS SIGNAL WILL BE INTEGRATED WITH THE EXISTING SYSTEM BETWEEN FRANKLIN AVENUE AND WILLIAMSBURG DRIVE. THE INTERCONNECT TO THE EAST WILL BE RE-ROUTED AND NEW INTERCONNECT TO THE WEST WILL BE INSTALLED. MD 193 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA THREE-PHASE, FULL-TRAFFIC-ACTUATED MODE. VIDEO DETECTION IS PROPOSED FOR PRESENCE DETECTION ON THE RAMP AND SAMPLING ON EAST- AND WESTBOUND MD 193. A LOOP DETECTOR IS PROPOSED FOR QUEUE DETECTION ON THE RAMP. A CONCURRENT MAINLINE PEDESTRIAN PHASE IS PROPOSED.

CONTROLLER REQUIREMENTS

INSTALL A NEW EIGHT-PHASE FULLY ACTUATED TRAFFIC SIGNAL CONTROLLER, VIDEO DETECTION EQUIPMENT INTERFACE, 2-WIRE CENTRAL CONTROL UNIT, FOUR CHANNEL LOOP DETECTION AMPLIFIER AND ASSOCIATED HARNESSES IN A NEMA SIZE '6' BASE MOUNTED CABINET.

PHONE DROP

THE CONTRACTOR SHALL NOTIFY MR. KAMAL HAMUD OF MONTGOMERY COUNTY AT 240-777-8761 FOR THE PHONE DROP LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. HAMUD WITH THE NEAREST STREET ADDRESS, ZIP CODE AND PHONE NUMBER.

THE CONTACT PERSONS FOR DISTRICT #3 ARE AS FOLLOWS:

Mr. Jeff Wentz
Assistant District Engineer - Traffic
Phone: 301-513-7358

Mr. Augie Reblich
Assistant District Engineer - Utility
Phone: 301-513-7350

Mr. Wayne Mowdy
Assistant District Engineer - Maintenance
Phone: 301-513-7304

Mr. Richard L. Daff Sr.
Chief, Traffic Operations Division
Phone: 410-787-7630

Mr. Edward Rodenhizer
Chief, SHA Traffic Signal Shop
Phone: 410-787-7650

Mr. Kamal Hamud
Montgomery County Department of Public Works
Phone: 240-777-8761

Mr. Keith Lord
Montgomery County
Phone: 301-279-1291

The Power Company Representative is:
Potomac Electric Power Company
8300 Old Marlboro Pike
Upper Marlboro, Maryland 20772
Phone: 301-961-5325

EQUIPMENT LIST 'A'

EQUIPMENT TO BE FURNISHED BY THE SHA.

CATEGORY CODE	QUANTITY	DESCRIPTION
900000	1 EA	VIDEO INTERFACE EQUIPMENT: I-4 CAMERAS
963010	1 EA	FOUR CHANNEL LOOP DETECTOR AMPLIFIER, RACK MOUNT
971017	1 EA	EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET - BASE MOUNT
973023	159 SF	SHEET ALUMINUM SIGNS: 1 EACH - ASSOCIATED SHIELD ASSEMBLY "EAST, MD 193, LEFT ARROW" (48 IN. X 75 IN.) GROUND MOUNT 1 EACH - ASSOCIATED SHIELD ASSEMBLY "WEST, MD 193, RIGHT ARROW" (30 IN. X 51 IN.) POLE MOUNT 2 EACH - R3-3 (24 IN. X 24 IN.) - MAST ARM MOUNT 2 EACH - R3-5 (30 IN. X 36 IN.) - MAST ARM MOUNT 1 EACH - D3-1 (VAR. X 16 IN.) - MAST ARM MOUNT 1 EACH - R3-6(1)MOD (30 IN. X 54 IN.) - MAST ARM MOUNT 1 EACH - R3-5(2) (30 IN. X 54 IN.) - MAST ARM MOUNT 2 EACH - R10-4(1)MOD (9 IN. X 15 IN.) - POLE MOUNT (I-495 RAMP) 5 EACH - W3-3 (36 IN. X 36 IN.) FY + D95-25 (24 IN. X 24 IN.) - GROUND MOUNT

EQUIPMENT LIST 'C'

EQUIPMENT TO BE REMOVED AND RETURNED TO SHA.

ITEM NO	QUANTITY	DESCRIPTION
NONE		ALL REMOVED EQUIPMENT SHALL BECOME PROPERTY OF THE CONTRACTOR.

EQUIPMENT LIST 'B'

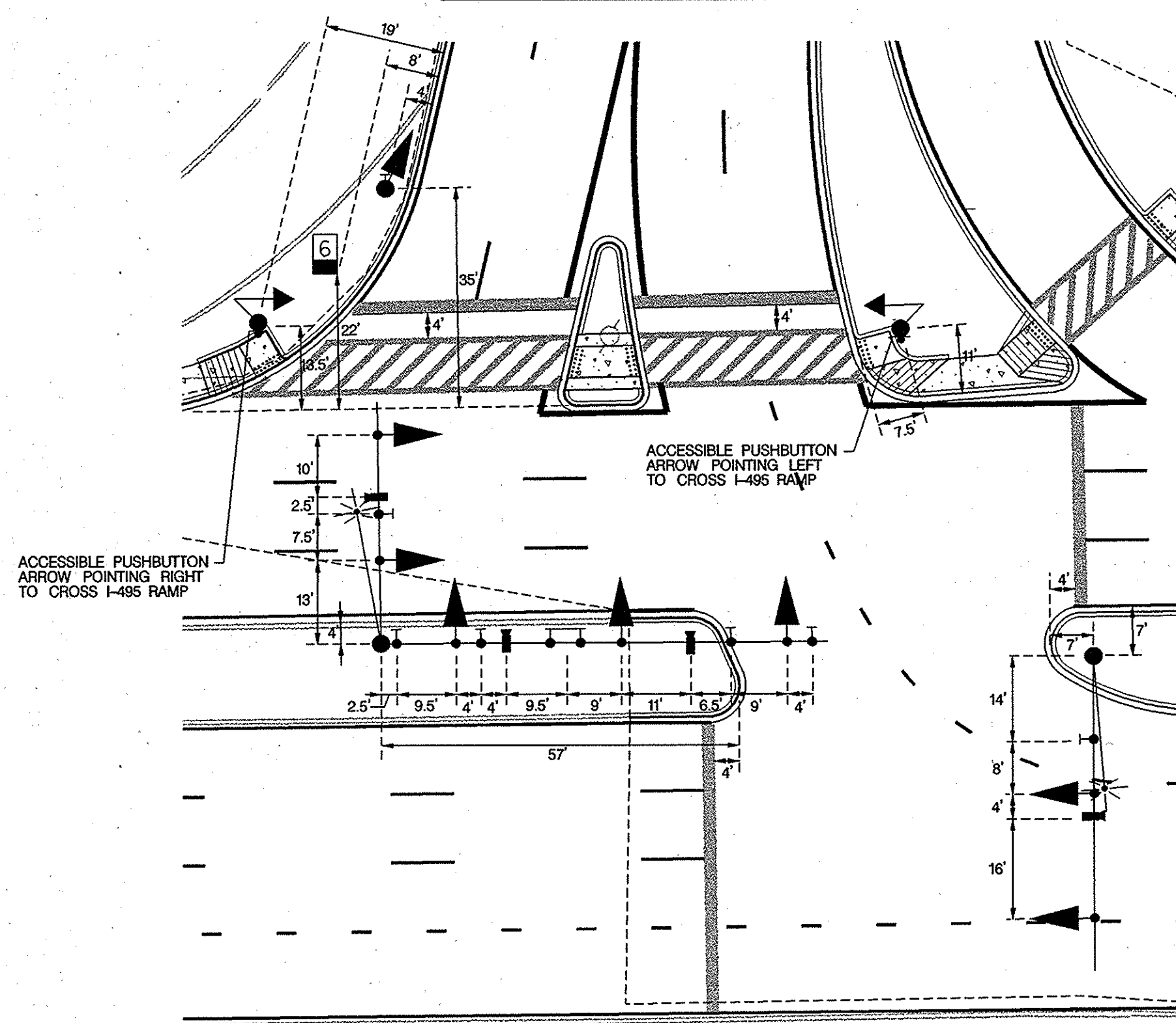
EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

CATEGORY CODE	QUANTITY	DESCRIPTION
120500	2 LS	MAINTENANCE OF TRAFFIC
203030	5 CY	TEST PIT EXCAVATION
585620	500 LF	12 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
585624	160 LF	24 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
800000	2 EA	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD - POLE MOUNTED
800000	2 EA	ACCESSIBLE PEDESTRIAN PUSHBUTTON
800000	1 EA	2-WIRE CENTRAL CONTROL UNIT
800000	170 LF	ELECTRICAL CABLE - 1 CONDUCTOR, 250 KCMIL, CU, USE
801004	11 CY	CONCRETE FOR SIGNAL FOUNDATION
801106	115 LF	WOOD SIGN SUPPORTS 4 INCH X 6 INCH
802501	420 LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805125	110 LF	2 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
805135	600 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
805140	350 LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
805145	115 LF	2 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
805150	40 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
805155	60 LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
805160	5 LF	1 INCH LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
807202	1 EA	'200 A' METERED SERVICE PEDESTAL
811001	10 EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
813015	159 SF	INSTALL OVERHEAD SIGN
816001	4 EA	VIDEO DETECTION CAMERA
816005	3 EA	CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
816010	1 EA	CONTROL CABLE, 500 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
818004	2 EA	10 FOOT BREAKAWAY PEDESTAL POLE
818010	1 EA	14 FOOT BREAKAWAY PEDESTAL POLE
818036	1 EA	STEEL POLE WITH A SINGLE 50 FOOT MAST ARM
818051	1 EA	STEEL POLE WITH A TWIN 50 FOOT AND 70 FOOT MAST ARMS
831010	2 EA	250 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE
837001	8 EA	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
860284	24 EA	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION
860292	1 EA	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
861104	600 LF	ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
861105	150 LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
861107	390 LF	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
861108	610 LF	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
861116	390 LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG), TC
862101	420 LF	LOOP WIRE ENCASED IN FLEXIBLE TUBING
862102	120 LF	SAW CUT FOR SIGNAL (LOOP DETECTOR)
866104	2 EA	20 FOOT LIGHTING ARM ON SIGNAL STRUCTURE
871202	1 EA	INSTALL CONTROLLER AND CABINET - BASE MOUNT

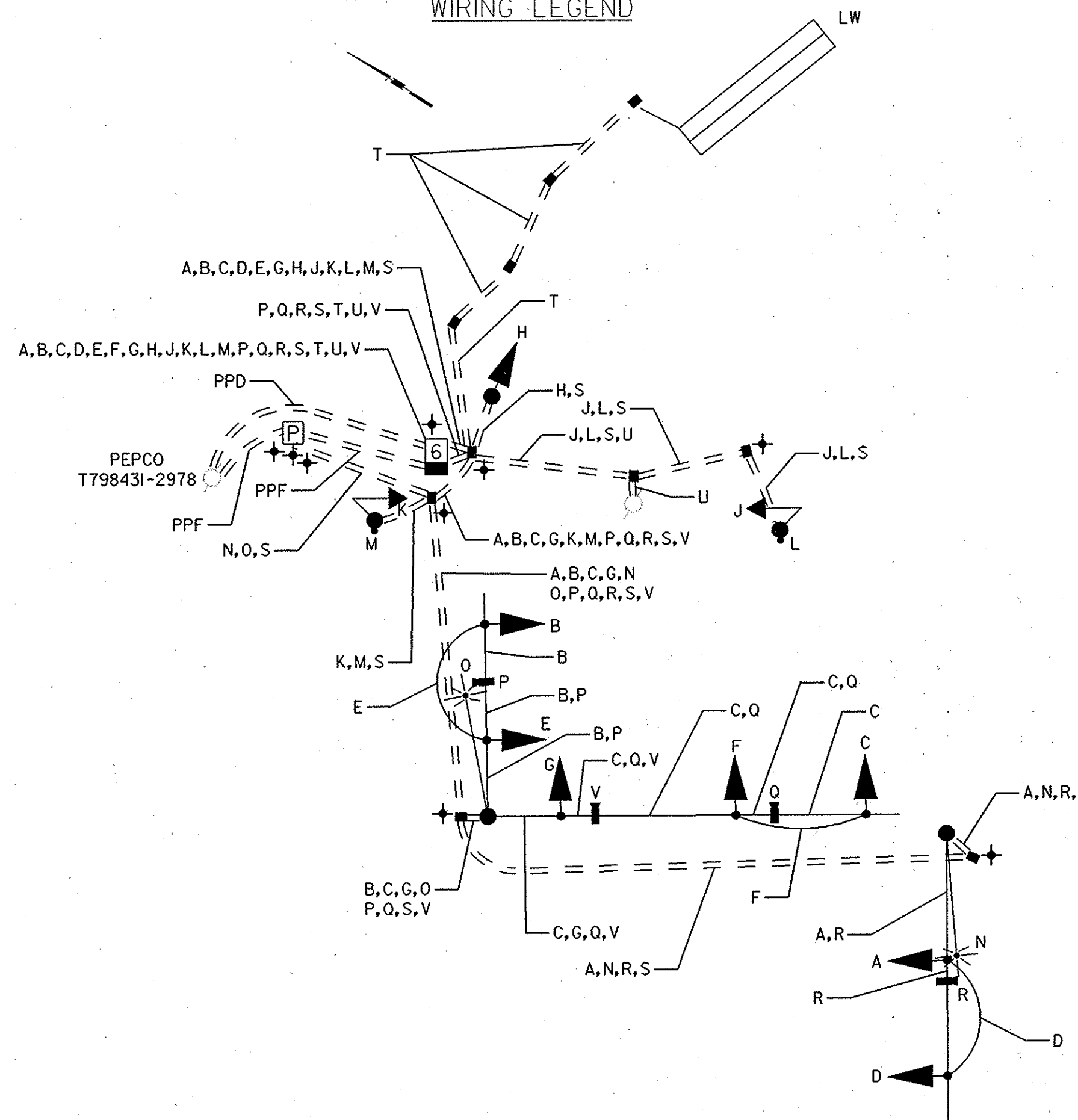
PHASE CHART

	1	2	3	4	5	6	7	8	9	10	
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PHASE 2 + 6	G	G	G	G	R	R	R	R	W	W	
PHASE 2 + 6 PED CLEARANCE/COUNTDOWN	G	G	G	G	R	R	R	R	FL/DW	FL/DW	
PHASE 2 + 6 CHANGE	Y	Y	Y	Y	R	R	R	R	DW	DW	
PHASE 4	R	R	R	R	G	G	G	G	DW	DW	
PHASE 4 CHANGE	R	R	R	R	Y	Y	Y	Y	DW	DW	
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK	

PROPOSED SIGNAL LAYOUT



WIRING LEGEND



A	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
B	
C	
D	
E	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
F	
G	
H	
J	
K	
L	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
M	
N	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG), TC
O	
P	CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
Q	
R	CONTROL CABLE, 500 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
S	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
T	ELECTRICAL CABLE - 2 CONDUCTOR ALUMINUM SHIELDED (NO. 14 AWG)
U	SEE INTERCONNECT PLAN
LW	LOOP WIRE
PPD	PROPOSED UNDERGROUND TELEPHONE DROP TO BE INSTALLED BY OTHERS
PPF	PROPOSED UNDERGROUND POWER SERVICE (ELECTRICAL CABLE - 1 CONDUCTOR, 250 KCMIL, CU, USE 3 RUNS WITH 3-30' COILS OF SLACK CABLE AT TRANSFORMER. FINAL SERVICE CONNECTIONS SHALL BE MADE BY PEPCO)
	PROPOSED GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH

STV Incorporated

engineers/architects/planners/construction managers
7125 Ambassador Road Baltimore, MD 21244-2722 (410) 944-9112

SHA STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
MD 193 (UNIVERSITY BOULEVARD) AT
I-495 (CAPITAL BELTWAY)

GENERAL INFORMATION

SCALE	NONE	DATE	09/2006	CONTRACT NO.	MOB235187
DESIGNED BY	SBS	COUNTY	MONTGOMERY		
DRAWN BY	SBS	LOGMILE	15019304.84		
CHECKED BY	MTS	T.I.M.S. NO.	H314		
F.A.P. NO.	SEE TITLE SHEET	TOD NO.			
DRAWING NO.	TS-4521-GI	OF		SHEET NO.	34 OF 36

PLOTTED: FRIDAY, SEPTEMBER 08, 2006 AT 11:55 AM
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